Dynamics of Population Models with Physiological Structures

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Age-structure models have been widely applied in infectious disease modelling, specifically, the "age" variable is not only restricted to model chronological age, but is also used to represent infection age, recovery age, class age, immunity age, etc. There have been some studies taking into account the combination of two physiological characteristics (such as age-age, age-size), however there are very few theoretical studies on such models. We consider a scalar population model with two physiological structures and study its fundamental properties and dynamical behaviors via the approach of semigroup theory. I this talk, I will briefly review the theory on single age-structure models and present our results on double physiological-structure models in the meantime.

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